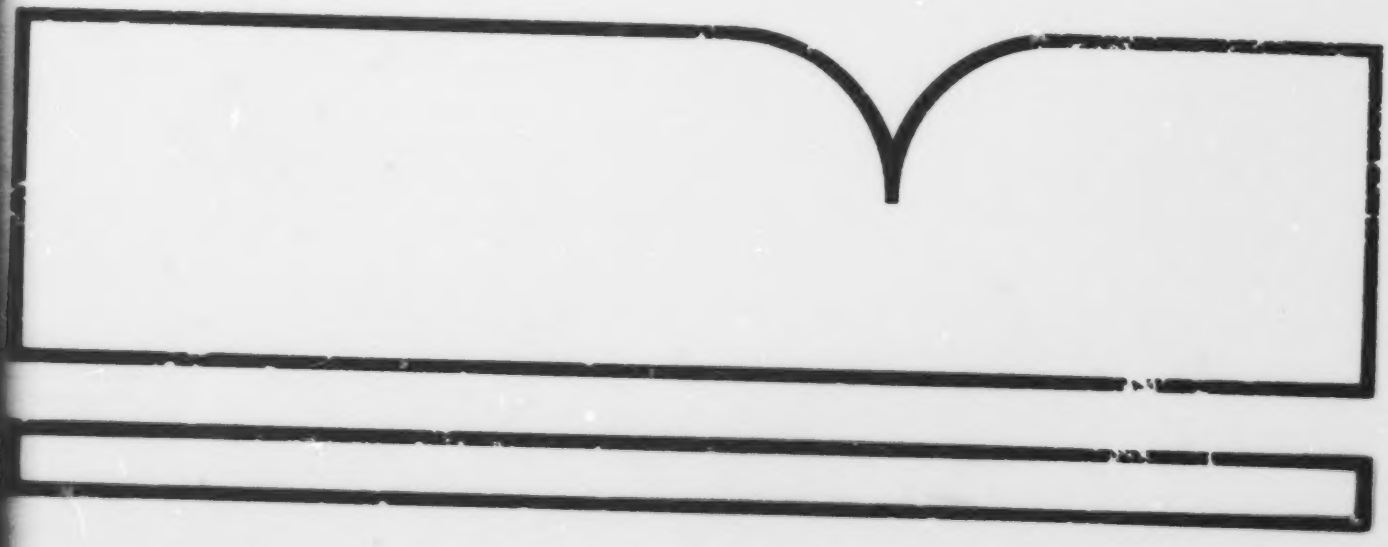
PB90-178872

Superfund Record of Decision (EPA Region 5): New Brighton/Arden Hills (TCAAP), Twin Cities Army Ammunition Plant, MN. (Seventh Remedial Action), August 1989

(U.S.) Environmental Protection Agency, Washington, DC

11 Aug 89



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15. Supplementary Notes			

16. Abstract (Limit: 200 words)

The New Brighton/Arden Hills site, also known as the Twin Cities Army Ammunition Plant (TCAAP) site, is in New Brighton, Minnesota. Land use bordering the four square-mile site is largely residential. Past disposal of ammunition manufacturing wastes onsite resulted in contamination of ground water beneath and downgradient of the site. A total of 14 waste disposal locations have been identified and assigned as Sites A through K. During remedial investigations at Site D, soil was discovered to be contaminated with PCBs and other organic and metal contaminants. A soil gas extraction system was implemented to remove the source of volatile organic contamination and reduce the potential of migration to ground water. In implementing the soil gas extraction system, PCB-contaminated soil was removed, stockpiled near Site D, and sealed with a plastic liner material. This interim remedy addresses the treatment and disposal of contaminated soil that is stockpiled near Site D. The primary contaminants of concern affecting the soil are VOCs including TCE and PCE, other organics including PCBs, and metals including arsenic and lead.

The selected remedial action for the site includes onsite treatment of approximately 1,400 cubic yards of stockpiled soil using mobile infrared thermal treatment technology; analysis of treated soil to ensure PCB treatment goal is met (Continued on next page)

17. Document Analysis a. Descriptors

Record of Decision - New Brighton/Arden Hills (TCAAP), MN
Seventh Remedial Action
Contaminated Medium: soil
Key Contaminants: VOCs (TCE, PCE), organics (PCBs), metals (arsenic, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 32
	20. Security Class (This Page) None	22. Price

EPA/ROD/R05-89/118
New Brighton/Arden Hills (TCAAP), MN

16. Abstract (Continued)

followed by placement of treated soil in an area near Site D; discharge of treated scrubber wastewater to the TCAAP sanitary sewer system and ultimately to a POTW; decontamination and removal of equipment used in the treatment process; and air monitoring during soil treatment. The estimated total cost for the selected remedy is $1,200,000.

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R05-89/118
August 1989

PB90-178872

EPA

Superfund Record of Decision:

New Brighton/Arden Hills (TCAAP), MN

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U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL INFORMATION SERVICE
SPRINGFIELD, VA. 22161

RECORD OF DECISION ON REMOVAL ACTION FOR PCB-CONTAMINATED SOILS NEAR SITE D

TWIN CITIES ARMY AMMUNITION PLANT
NEW BRIGHTON, MINNESOTA

JUNE 1989

This Document is Intended to Comply with the National Environmental Policy Act of 1969.

INSTALLATION ENVIRONMENTAL RESTORATION PROGRAM
TWIN CITIES ARMY AMMUNITION PLANT

RECORD OF DECISION ON REMOVAL ACTION

Thermal Treatment of PCB-Contaminated Soils near Site D

SITE: Twin Cities Army Ammunition Plant (TCAAP), New Brighton, Minnesota

STATEMENT OF BASIS AND PURPOSE:

This Record of Decision (ROD) document presents the selected remedial action for remediating soil contaminated with polychlorinated biphenyls (PCBs) near Site D of the TCAAP Superfund site located in New Brighton, Minnesota. The decision document is developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for this site. The following documents describe the basis for this decision.

INDEX

- Post Action Report on PCB Removal
  Site D
  Twin Cities Army Ammunition Plant
  Wenck & Associates, Inc.
  January 31, 1986

- Final Report On-Site Incineration Testing
  of Twin Cities Army Ammunition Site
  New Brighton, MN
  Shirco Infrared Systems Portable Test Unit
  Report No. 833-87-01
  September 24, 1987

- Installation Restoration Program
  Twin Cities Army Ammunition Plant
  Site D - PCB-Contaminated Soil
  Feasibility Study
  Federal Cartridge Company
  Final Report
  November 6, 1987

- Interim Remedial Action Plan
  Site D, PCB-Contaminated Soils
  Twin Cities Army Ammunition Plant
  Wenck Associates, Inc.
  March 1989

- Endangerment Assessment of PCB
  Incineration at Site D,
  Twin Cities Army Ammunition Plant
  PRC Environmental Management
  Chicago, IL

  March 1989

- Risk Evaluation of the Destruction of
  PCBs by High-Temperature Treatment
  of Affected Soils
  Twin Cities Army Ammunition Plant, Site D
  Carlos Stern Associates, Inc.
  Arlington, VA

  March 1989

The final remedial action will be selected following completion of the TCAAP Remedial Investigation (RI) and New Brighton/Arden Hills Feasibility Study (FS), currently being conducted by the Department of the Army (DA), and the New Brighton/Arden Hills RI being conducted by the U.S. Environmental Protection Agency (EPA) and the Minnesota Pollution Control Agency (MPCA).

The State of Minnesota has concurred in the selected remedy.

DESCRIPTION OF SELECTED REMEDY:

Approximately 1,400 cubic yards of PCB-contaminated soils will be treated using a mobile thermal treatment system. The mobile system will be transported to TCAAP and assembled for operation. The thermal operation is expected to take approximately three weeks. This remedy is not intended to address the groundwater contamination at TCAAP. Groundwater contamination has been partially addressed by other Interim Remedial Actions. Soil and water contamination will be addressed in the final remedy.

DECLARATION:

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the NCP (40 CFR Part 300), we have determined that the thermal treatment of PCB-contaminated soils near Site D is a cost-effective interim removal action that will be consistent with the final remedial action selected. The TCAAP Remedial Investigation (RI) and New Brighton/Arden Hills Feasibility Study (FS) currently being conducted by the Department of the Army (DA) and the U.S. EPA/MPCA will determine the final remedial action. DA, U.S. EPA, and MPCA have thoroughly discussed this removal action and determined that the treated soil will meet all federal and state requirements. The interim removal action will be considered part of the approved final remedial action and eligible for Department of Defense Environmental Restoration Account

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THE DECISION SUMMARY

This Decision Summary provides an overview of the site location and description; site history and enforcement activities; community relations history; scope and role of the response action within the site strategy; summary of site risks; documentation of significant changes; description of remedial action alternatives; summary of comparative analysis of alternatives, including the nine evaluation criteria used to screen the alternatives; the selected remedy; and the statutory determinations. The Decision Summary also explains the rationale for selecting the remedy and how the remedy meets the statutory requirements.

1.0 SITE NAME, LOCATION, AND DESCRIPTION

The Twin Cities Army Ammunition Plant (TCAAP) is a plant owned by the U.S. Army that is located in New Brighton, Minnesota (Figure 1). TCAAP occupies an area of approximately four square miles north of the Saint Paul/Minneapolis area. A number of communities surround TCAAP, including Arden Hills, New Brighton, and Saint Anthony to the south and southwest, Shoreview to the north and east, and Mounds View to the northwest. Residences located near the southwest corner of TCAAP are approximately one mile away from those areas within TCAAP that were identified to be sources of contamination.

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

TCAAP manufactured ammunition during major war conflicts. Wastes generated during manufacturing of ammunition were disposed of at several areas within TCAAP. Waste disposal, in turn, resulted in contamination of groundwater beneath and downgradient (southwest) of the TCAAP site. Earlier investigations on the groundwater contamination have identified a total of 14 waste disposal sites on the installation. Figure 2 depicts these sites, which have been designated Sites A through K, 129-3, 129-5, and 129-15. One of these sites is Site D.

To plan and dictate the course of actions necessary to remediate the contaminated areas of the TCAAP site, including Site D, the U.S. Army, the U.S. EPA, and MPCA signed a Federal Facility Agreement (FFA). The FFA was signed under the authority of Section 120 of CERCLA and became effective on December 31, 1987. All remedial investigation (RI) work and interim response actions (IRA) at the site were and are being undertaken in accordance with the stipulations of the FFA.

During the RI work at Site D, soil was found to be contaminated with polychlorinated biphenyls (PCBs). In addition to PCB contamination, other organic and inorganic contaminants were detected. Based on the RI work at the site, a soil gas

monies. Actual or threatened releases of hazardous substances from the PCB-contaminated soils near Site D, if not addressed by implementing the response action selected in the ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

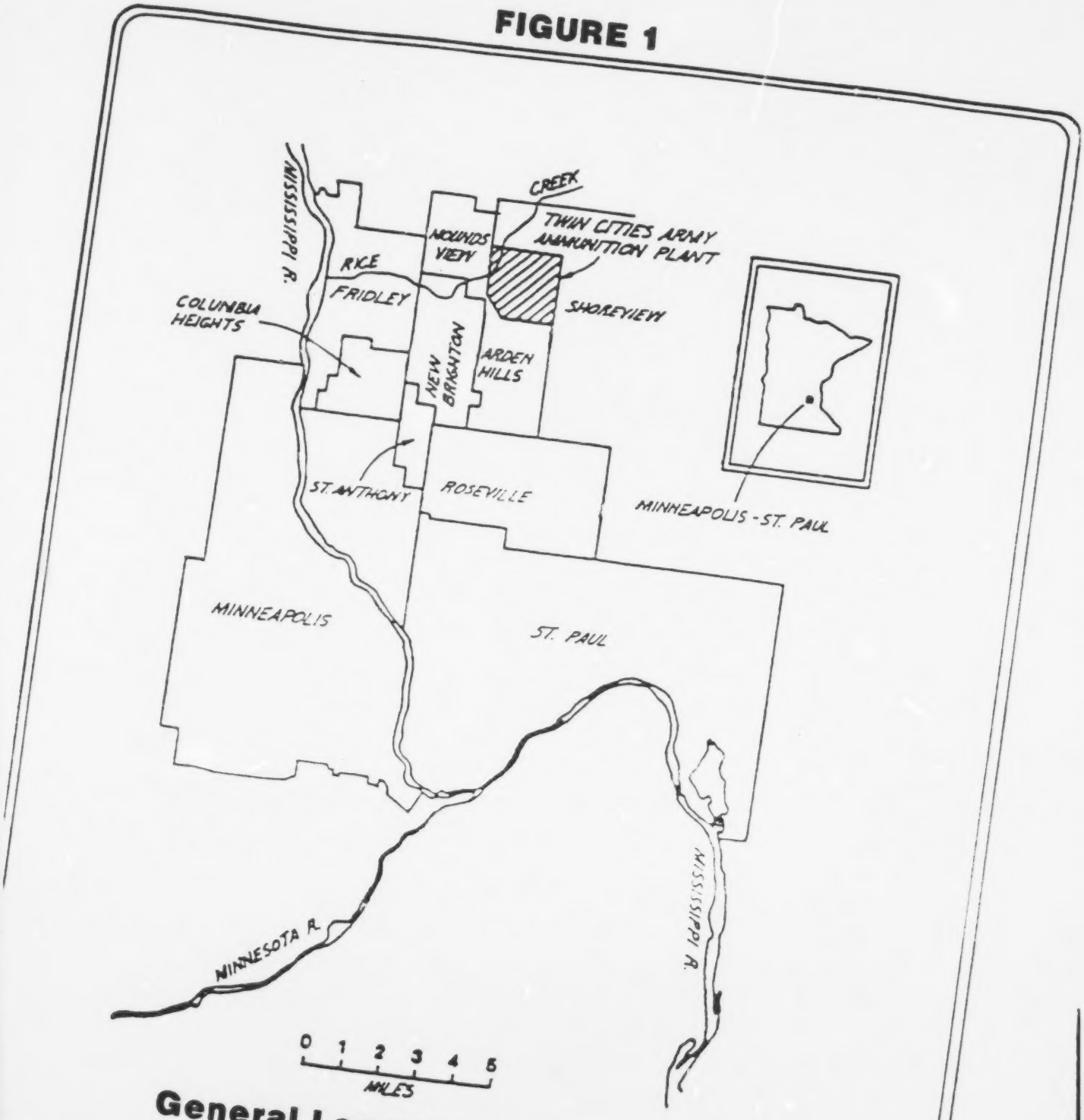
The selected remedy is protective of human health and the environment, attains federal and state requirements that are applicable or relevant and appropriate for this remedial action, and is cost-effective. This remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element and utilizes a permanent solution to the maximum extent practicable.

DA is currently implementing the DA/EPA/MPCA Federal Facility Agreement (effective 31 December 1987) in order to complete the RI/FS process. A ROD will be prepared for approval of any future remedial actions selected prior to or after completion of the ongoing RI/FS.

Valdas V. Adamkus 8/11/89 Date
Regional Administrator
Region V
Environmental Protection Agency

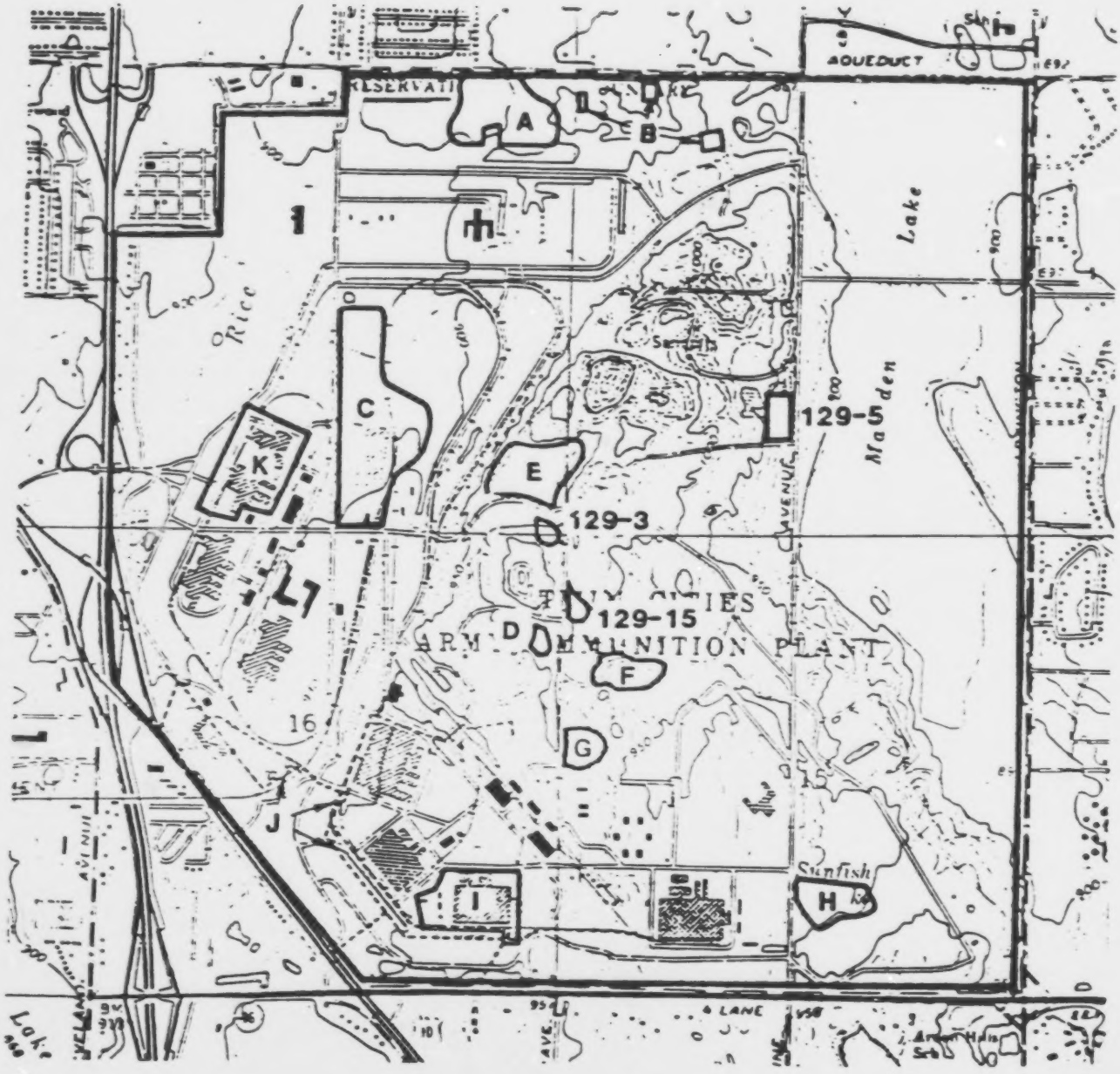
Lewis D. Walker 7/19/89 Date
Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health)
Office of the Assistant Secretary of the Army (Installations and Logistics

FIGURE 1



General Location Map of the Twin Cities Army Ammunition Plant

FIGURE 2



Areas of Contamination in the

Twin Cities Army Ammunition Plant

extraction system was implemented to remove the source of volatile organic contamination and reduce the potential of migration to the groundwater. In implementing the soil gas extraction system, PCB-contaminated soil was removed, stockpiled, and sealed within plastic liner material.

In November 1987, under the FFA, a feasibility study (FS) was conducted to identify, evaluate, and select the remedial action alternative that would: (1) be most protective of human health and the environment by permanently destroying site contamination; (2) meet all federal, state, and local regulatory requirements; and (3) be cost-effective. Of the five alternatives identified in the FS, on-site thermal treatment of contaminated soil was selected as the most feasible alternative. The FS was supplied to U.S. EPA and MPCA for review and approval. The U.S. EPA and MPCA concurred that the on-site thermal treatment alternative was the most feasible to implement at Site D, consistent with the requirements under CERCLA, SARA, and the NCP.

3.0 COMMUNITY RELATIONS HISTORY

Pursuant to CERCLA Section 113(k), 2 U.S.C.9613(k), and Section 300.67 of the NCP, the public, local authorities, Region V of the U.S. EPA, and the State of Minnesota were all requested to comment on the Interim Response Decision Record and the proposed ROD. Remediation was discussed at the community leaders meeting. One special meeting was held specifically to discuss the on-site thermal treatment. Since this ROD will be signed by the U.S. Army and U.S. EPA, these agencies will respond to each significant comment, criticism, and new data submitted.

Notification of comment period:	24 May 1989
Closing date of comment period:	22 June 1989
Public Meeting:	Held at New Brighton, Minnesota on June 15, 1989

4.0 SCOPE AND ROLE OF RESPONSE ACTION WITHIN SITE STRATEGY

As described in Section 2.0 of this ROD, soils stockpiled near Site D are contaminated with PCBs, organic, and inorganic contaminants. These soils were excavated, stockpiled, and covered with a liner at the site. If no action were to be taken, the possibility of physical damage to the liner would potentially cause release of the above contaminants to the environment. The liner would have to be maintained and local groundwater monitored for potential adverse impacts indefinitely. Furthermore, the future access or land use of the site would have to be restricted in perpetuity. Therefore, the remedial action sought for alleviating contamination at the site should remove the source of contamination and, using treatment response technology, permanently reduce the mobility, toxicity, or volume of the contaminant mass. This would prevent potential future release, migration, or adverse impacts to human health and the environment.

5.0 SUMMARY OF SITE CHARACTERISTICS

Based on the results of previous investigations at the site, approximately 1,400 cubic yards of contaminated soil were excavated from Site D in 1985 to allow implementation of the soil gas extraction system at the site. The excavated contaminated soil was then stored, pending final disposal, in secure containment near Site D on a 40-mil high-density polyethylene (HDPE) liner, with a 20-mil HPDE cover. Testing of the excavated soil revealed the following average concentrations, in milligrams per kilogram (mg/kg) of the following contaminants:

Constituent	Average Concentration mg/kg
Organics	
PCB	71.1
1,1,1-Trichloroethane	65.2
Tetrachloroethene	2.3
Trichloroethene	341.0
Inorganics	
Arsenic	1.3
Barium	91.8
Lead	85.8

6.0 SUMMARY OF SITE RISKS

U.S. EPA conducted an Endangerment Assessment (EA) on PCB-contaminated soil at Site D. The EA evaluated site risks under two scenarios: (1) no-action, in which it is assumed that contaminated soil is left in place and the public can easily access the site (which is not possible under the present security of the TCAAP), and (2) on-site thermal treatment of excavated soil.

For conducting the EA, the following indicator chemicals were selected: PCBs, organic contaminants (1,1,1-trichloroethane, tetrachloroethene, trichloroethene, and dioxin), and inorganics (arsenic, barium, and lead).

It is believed that organic contaminants may migrate from the site primarily through volatilization and release of fugitive dusts. Because a portion of the area surrounding Site D is contaminated with organic (except PCBs) and inorganic contaminants, fate and transport data were ineffective in determining migration routes for indicator chemicals other than PCBs.

Under the no-action alternative, three exposure scenarios were identified: (1) ingestion of soils, (2) direct contact with soils, and (3) inhalation of volatile organic compounds (VOCs) and particulate air contaminants. Under the probable-case scenario, 6 lifetime excess cancer risks in a population of 10,000 might be induced due to contamination. Under the worse-case scenario, the lifetime excess cancer risk increases to 2 in 1,000. The no-action alternative poses potential risks to human health. These risks exceed the Superfund acceptable risk range of 1 in 10,000 to 1 in 10 million.

One exposure scenario was identified for the on-site thermal treatment alternative: inhalation of stack emissions. The worst-case lifetime excess cancer risk would be 4 in 10 million (equivalent to 1 in 2.5 million). Relative to the no-action alternative, thermal treatment does not present significant human health risks. The potential health risks that may be posed from implementing the remaining four alternatives considered in the FS were not quantified. However, the relative performance of these alternatives with respect to the nine evaluation criteria (presented in Section 9) is discussed in Section 9 of this ROD.

7.0 DOCUMENTATION OF SIGNIFICANT CHANGES

This ROD does not differ significantly from the public comment draft ROD of May 1989. There are no significant changes in the joint decision (by U.S. Army, U.S. EPA, and MPCA) to implement the selected remedy at Site D. This ROD has only been changed from the May 1989 public comment draft ROD to clarify the criteria and basis used in this decision.

8.0 DESCRIPTION OF REMEDIAL ACTION

The FS for remediating PCB soil contamination near Site D identified and evaluated five response action alternatives: (1) no action; (2) transfer of contaminated soils to Honeywell's Retrievable Monitored Containment Structure (RMCS) located near Building No. 502 of TCAAP; (3) off-site disposal; (4) on-site thermal treatment; and (5) off-site thermal treatment.

Alternative A: No Action

Under the no-action alternative, the contaminated soil would remain in the secured soil storage area near Site D. Specific components of the no-action remedial alternative include:

- Continue maintenance of the HDPE liner, site fence, and access gate.
- Leave the contaminated soil in its present location for an undetermined period of time.

- Monitor the storage area for possible infiltration to or leakage from the HDPE liner.

- Monitor the local groundwater to determine whether soil storage is impacting the aquifer.

Implementation Time: Maintenance of the site and monitoring of groundwater contamination would continue indefinitely.

Total Cost: Approximately $500 per month.

Alternative B: Transfer to Honeywell's RMCS

This alternative consists of transporting the contaminated soil and liner to the Honeywell Retrievable Monitored Containment Structure (RMCS), a specially designed storage vault, located near Building No. 502 on the TCAAP installation. The following measures comprise the RMCS alternative:

- General site preparation

- Loading transport vehicles

- Relocating contaminated soil and liner to RMCS

- Site closure

Implementation Time: Approximately 1-2 months

Total Cost: $100,000 with additional monthly fees.

Alternative C: Off-Site Disposal

Another alternative is to relocate the contaminated soil and liner to an off-site Secure Chemical Management Facility (SCMF). Placing the material in a SCMF would eliminate environmental threats posed by leaving the contaminated soil on-site. The Off-Site Disposal alternative consists of the following remedial action measures:

- General site preparation

- Loading transport vehicles

- Decontaminating loading equipment and transport vehicles

- Off-site transportation/disposal

- Site closure

Implementation Time: Approximately 1-2 months

Total Cost: $500,000 - $1,000,000

Alternative D: On-Site Thermal Treatment

Soil remediation by the on-site thermal treatment method involves the use of a leased portable thermal processing unit at the soil storage area. The thermal treatment technology would eliminate environmental threats posed by leaving the contaminated soil on-site as well as avoid any liability incurred by placing the material in a SCMF. The thermal treatment process involves:

- General site preparation
- Mobilizing thermal processing unit
- Thermal processing of soil
- Disposing of treated soil (ash)
- Demobilization
- Site closure

Implementation Time: Approximately 3 weeks of thermal processing.

Total Cost: $1.2 million

Alternative E: Off-Site Thermal Treatment

This alternative is to transport the contaminated soil and liner to an off-site thermal treatment facility for destruction; it involves the following measures:

- General site preparation
- Load transport vehicles
- Decontaminating loading equipment and transport vehicles
- Off-site transportation/disposal
- Site closure

Implementation Time: 3-7 months

Total Cost: $4.7 - $5.0 million

9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

This section describes the criteria used for evaluating the remedial action alternatives and identifies the strengths and weaknesses of each alternative in satisfying these criteria. It also identifies the legally applicable, relevant, or appropriate requirements (ARARs) with which the remedial actions have to comply.

9.1 EVALUATION CRITERIA

The alternatives are weighed against nine evaluation criteria:

- Overall protection of human health and the environment;
- Compliance with applicable or relevant and appropriate requirements (ARARs);
- Long-term effectiveness and permanence;
- Reduction of mobility, toxicity, or volume (M/T/V);
- Short-term effectiveness;
- Implementability;
- Cost;
- State acceptance; and
- Community acceptance.

In addition, the selected remedy must satisfy the statutory requirements of Section 121 of CERCLA as amended by SARA.

9.2 COMPARISON OF ALTERNATIVES

The five remedial action alternatives are compared below in terms of their ability to satisfy the above nine evaluation criteria:

Overall Protection of Human Health and the Environment

Under the no-action alternative (Alternative A), the contaminated soil would be left intact and the potential for releasing contaminants to the environment would still exist because of possible physical damage to the HDPE liner material.

On-site storage in Honeywell's RMCS (Alternative B) and off-site disposal (Alternative C) would alleviate the potential for adverse environmental impacts by storing and monitoring the contaminated soil in approved storage facilities. However, Alternatives B and C do not provide a permanent solution to the

contamination problem but transfer the contaminated soil from its existing location to other disposal areas. Under Alternatives B and C, on-site workers may be exposed to contaminated soils by ingestion or inhalation during removal of the soil from Site D. In addition, Alternative C would pose a potential threat to the surrounding population because contaminated soil would need to be transported off-site.

On-site thermal treatment (Alternative D) and off-site thermal treatment (Alternative E) would provide the greatest degree of protection possible to human health and the environment by permanently destroying contaminants present in the soil. Under Alternatives D and E, on-site workers may also be exposed to contaminants during removal of soil from Site D. Only Alternative D would minimize handling and avoid transportation of the contaminated soil. On the other hand, Alternative E would pose a potential threat to the surrounding population because of the need to transport contaminated soil off-site.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

All alternatives except no-action would achieve ARARs and the requirements of the Federal Facility Agreement (FFA). However, on-site storage and off-site disposal alternatives (Alternatives B and C) do not satisfy the spirit of the land disposal restrictions under the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Act (HSWA) of 1984; nor do these alternatives satisfy the preference of SARA Section 121 for solutions that permanently reduce the mobility, toxicity, or volume (M/T/V) of contamination by implementing a response treatment technology. Under Alternatives B and C, transferring the contaminated soil to the RMCS or off-site (SCMF) would require RCRA manifesting in accordance with Minnesota Rules, Part 7045.0261. Transportation of the contaminated soil would also have to comply with Minnesota Rules, Part 7045.0371. Any applicable RCRA or Toxic Substances Control Act (TSCA) permit(s) would need to be maintained by Honeywell (for the RMCS) or the SCMF for the duration of the storage period.

On-site and off-site thermal treatment alternatives (Alternatives D and E) would be consistent with the preference of SARA for solutions that permanently reduce the M/T/V of the contaminated soil. In addition, Alternative E would have to comply with the manifesting and transportation requirements described above. Both Alternatives D and E would have to comply with the TSCA requirements presented in the Code of Federal Regulations (CFR §761.70). A permit from the Metropolitan Waste Control Commission (MWCC) would be required under Alternative D for discharging scrubber blow-down water to the TCAAP sanitary sewers. Following thermal treatment of the contaminated soil, Site D closure requirements set forth in the FFA would also have to be met.

Long-Term Effectiveness and Permanence

Alternatives A, B, and C would do nothing to remove permanently and effectively the contaminants of concern. Only on-site and off-site thermal treatment (Alternatives D and E) would destroy permanently the contaminants by treating thermally the contaminated soil. According to the TSCS requirements, Alternatives D and E would have to meet a Destruction Removal Efficiency (DRE) performance standard of 99.9999 percent, or greater, to ensure that contaminants are effectively removed from the Site D soil.

Reduction of Mobility, Toxicity, or Volume (M/T/V)

The no-action alternative would not reduce the M/T/V of contamination because, under this alternative, no treatment or containment measures would be implemented. On-site storage and off-site disposal (Alternatives B and C) would reduce the mobility of the contaminants in the short-term by reducing the potential for migration due to infiltration or precipitation. Only on-site and off-site thermal treatment (Alternatives D and E) would permanently reduce the M/T/V of contaminants from the contaminated soil.

Short-Term Effectiveness

Except for the no-action alternative, the remaining alternatives would effectively alleviate the contamination problem at Site D on the short-term basis. The primary short-term concern during implementation of any alternative other that no-action would be with volatilization of VOCs and PCB-contaminated fugitive dust that may be generated during handling of soil. The on-site storage, off-site disposal, and off-site thermal treatment would require more handling of the contaminated soil than on-site thermal treatment. Therefore, the on-site thermal treatment alternative would involve minimal soil handling and would be more effective than the other alternatives on the short-term basis.

Implementability

All considered remedial action alternatives are implementable. The no-action alternative (Alternative A) would only require maintenance of the fence, the HDPE liner, and monitoring of the contaminated soil and ground beneath the site. On-site storage and off-site disposal (Alternatives B and C) would utilize conventional construction equipment such as front-end loaders, bulldozers, and trucks to remove the contaminated soil and transport it to its final destination (on-site to the RMCS or off-site to a SMCF). The FS estimated that it would take approximately 30-60 days to implement Alternative B and 30-60 days to implement Alternative C. On-site and off-site thermal treatment (Alternatives D and E) would implement proven technologies for treating and removing PCBs and VOCs from the contaminated soil. The estimated time for implementing Alternative D is approximately 3 weeks while implementing Alternative E would take 3-7 months.

Cost

The total costs for the remedial action alternatives were presented in the FS for PCB-contaminated soil remediation at the site. These costs are presented below:

Alternative	Description	Total Cost (1989 Dollars)
A	No-Action	$500/month
B	On-Site Storage	$100,000 + Monthly Fee
C	Off-Site Disposal	$500,000 - $1,000,000
D	On-Site Thermal Treatment	$1,200,000
E	Off-Site Thermal Treatment	$4,700,000 - $5,000,000

The costs shown above represent 1989 dollar estimates. The on-site thermal treatment alternative (Alternative D) is the second most expensive alternative after off-site thermal treatment.

State Acceptance

The State of Minnesota fully agrees and supports the on-site thermal treatment alternative. The other alternatives are less acceptable to the State because either they do not provide a permanent remedy for the contamination problem or they do not reduce the M/T/V of the contaminants.

Community Acceptance

From the public meeting held in New Brighton, Minnesota on June 15, 1989, and from no public comments received during the comment period, it appears that the public has no distinct preference as to which alternative is acceptable for remediation of contaminated soil. A total of 41 people attended the June 15th public meeting, of which about 10 were private citizens and not from federal, state, or local agencies.

9.3 IDENTIFICATION OF LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

The purpose of this section is to identify the federal and state ARARs that should be applied to the effluent from the thermal treatment system, pursuant to Section 121 of SARA.

The following factors were applied in selecting ARARs:

1. Any standard, requirement, criteria or limitation under federal environmental law may be an ARAR [SARA 121 (d)(2)(A)(1)]. Non-binding advisories, goals, and guidelines are not ARARs.

2. Any promulgated standard, requirement, criteria or limitation under a state environmental law that is more stringent than any federal standard is of general applicability, enforceable by the state, and identified by the state to the U.S. Army in a timely manner, may be an ARAR.

3. Only substantive requirements may be ARARs. Permits, notices, and reporting requirements in federal and state laws do not apply to CERCLA response actions.

Based upon these factors, the intent of the following standards and regulations are applicable federal and Minnesota ARARs:

1. Resource Conservation and Recovery Act (Federal)

2. The Toxic Substances Control Act Regulations (Federal)

3. Standards issued pursuant to the Clean Air Act by the Minnesota Pollution Control Agency (Federal and State)

4. Discharge limitations as related to the Clean Water Act from the scrubber water discharge

5. Occupational Safety and Health Act

At this time there are no known toxic substances, pollutants, or any contaminants, as defined by SARA, migrating from the stockpiled PCB-contaminated soil. The U.S. Army, in conjunction with the U.S. EPA and MPCA, will continue to monitor any toxic substances, pollutants, or contaminants that may migrate from this PCB-contaminated soil pile, and will take appropriate action to avoid imminent and substantial danger to public health or the environment.

Establishing water quality criteria to determine the necessary extent and degree of remediation for groundwater migrating from the TCAAP site is not part of this interim ROD. Such determinations will be based on ARARs or on a risk-based number and will be included in the final RI/FS and ROD. However, a thermal treatment level for the soils will be based upon a PCB concentration of 2 parts per million (ppm) or less to meet the TSCA requirements. Processed soil found to have PCB concentrations of greater than 2 ppm will be returned for retreatment. In the past, the thermal treatment chosen has consistently reduced the PCB concentrations to below detection levels.

10.0 THE SELECTED REMEDY -- ON-SITE THERMAL TREATMENT

This section describes the selected remedy and the rationale for its selection.

10.1 DESCRIPTION OF THE SELECTED REMEDY

A mobile infrared thermal treatment unit owned by the OH Materials (OHM) Corporation will be used on this site to thermally destroy the polychlorinated biphenyls (PCBs) in the soils. The OHM treatment unit has been contracted through the Ecova Company. This unit has a National Toxic Substances Control Act (TSCA) permit to dispose of PCBs.

The mobile thermal treatment process consists of a high-temperature-powered primary chamber with a high-temperature alloy belt conveying system. The secondary chamber is fossil-fuel fired, operated at a temperature of approximately 2,000° Fahrenheit. Combustion off-gases from the secondary chamber will be run through pollution control equipment consisting of a quench section, a scrubber chevron mist eliminator, and a packed column chemical scrubber.

The thermal treatment operation will be performed in accordance with conditions of the TSCA permit and other applicable requirements [40 CFR §761.70(b)(2)]. Comprehensive monitoring of the process streams and complete system checks will be conducted to ensure safe and efficient operating conditions.

Thermally treated soil will be analyzed to ensure a PCB concentration of less than 2 ppm before it is placed at an area near Site D.

Treated wastewater, meeting the regulatory guidelines, will be discharged to the TCAAP sanitary sewer system and ultimately to the MWCC system.

After completing the soil thermal treatment, the equipment used in the process will be decontaminated before being removed off-site.

10.2 RATIONALE FOR SELECTION

The selected alternative is chosen based on the assessment of each criterion listed in Section 9.2. Section 121 of CERCLA stipulates that to be considered for selection in the ROD, an alternative must be protective of human health and the environment and able to attain ARARs, unless a waiver is granted. For those alternatives that met these statutory requirements, the U.S. Army, U.S. EPA, and MPCA focused on the other evaluation criteria, including short-term effectiveness, long-term effectiveness, implementability, permanently reduced M/T/V of contamination, and cost.

Thermal treatment technology satisfies all of these criteria, particularly permanence. On-site thermal treatment was found to be more cost-effective than off-site thermal treatment. Additionally, the short-term impacts associated with off-site treatment, such as increased truck traffic and the transportation of contaminated materials untreated over long distances through public access areas, are considered to be less acceptable than the construction impacts associated with on-site thermal treatment.

The U.S. Army, U.S. EPA, and MPCA also considered nontechnical factors that affect the implementability of a remedy, such as state and community acceptance. Based upon this assessment, taking into account the statutory preferences of CERCLA and SARA, the thermal treatment approach was selected for the site.

11.0 STATUTORY DETERMINATIONS

The interim remedial action selected for implementation at the site is consistent with CERCLA, SARA, and, to the extent practicable, the NCP. The thermal treatment alternative addresses the five statutory criteria in the following manner:

(1) Protects Human Health and the Environment

Thermal treatment will permanently reduce the risks presently posed to human health and the environment by preventing exposure to contaminated soils.

(2) Attains ARARs

This remedy will meet all applicable federal, state, and local ARARs that apply to the site. Federal environmental laws that apply to the selected remedial action at the site include:

- Resource Conservation and Recovery Act (RCRA)
- Clean Water Act (CWA)
- Toxic Substances Control Act (TSCA)
- Clean Air Act (CAA)
- Occupational Safety and Health Act (OSHA)

During removal and thermal treatment of PCB-contaminated soil, air emissions will be monitored and all relevant federal and state standards will be attained. Specifically, the National Ambient Air Quality Standards (NAAQS) will be met through specified techniques for activities, as well as required air monitoring during removal, to ensure that site-specific ambient levels are not exceeded.

OSHA regulations include 29 CFR 1910.120, which specify standards for handling hazardous wastes, and 29 CFR 1910.1000, which sets allowable ambient air concentrations for VOCs in the workplace. Suppressant foams and air-purifying and filtering devices will be used to comply not only with OSHA regulations but with any federal and state air quality standards.

(3) Is Cost-Effective

The estimated cost of on-site thermal treatment may be somewhat higher than several of the other remedial alternatives. However, the U.S. Army, U.S. EPA, and MPCA believe that the selected remedy is cost-effective because it will permanently destroy the PCB contamination at the site.

(4) Employs Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

Thermal treatment technology provides a permanent solution to the PCB problem at the site. Removing and treating the PCB-contaminated soil will reduce the risks posed to human health by virtual complete destruction of PCBs, as well as by eliminating the potential risk of release of PCBs from the soils into groundwater.

(5) Satisfies the Preference for Treatment as a Principal Element to Reduce Mobility, Toxicity, or Volume

Thermal treatment of PCB-contaminated soils will reduce the M/T/V of the contaminated soils and will minimize the threat posed by these soils to human health and the environment.

PUBLIC MEETING
PCB-CONTAMINATED SOILS
INTERIM REMEDIAL ACTION PLAN

JUNE 15, 1989 - 7:00 P.M.
NEW BRIGHTON CITY HALL

Opened at 7:00 P.M.

Clarence Oster: Please, all of you that have not signed up out at the entrance way, please sign up so we can get your name and address and then when we have future such gatherings as this we can make sure that we can get you on the mailing list. This podium over here will be set up for those of you that want to make individual statements following this public meeting. We ask that you use the mike and ask that you state your name so that we can get that all down on tape.

My name is Clarence Oster and I am the Project Manager for the Army out at the TCAAP site. With us in our introduction comments here are Art Kleinrath, who is the Project Manager for EPA, and Mark Schmitt, Project Manager for the MPCA.

The purpose of this meeting - you will hear more of this from Art and Mark - is one of many meetings that we hold for many of the different remedial action programs that we have ongoing out at the Twin Cities Army Ammunition Plant. Some of you have probably attended past public meetings, maybe you have seen public notices on it; but this particular project is one of many of those that we have ongoing and we will have more of these meetings and there will be lots more projects that are going to continue.

So with those introductory remarks, I will turn this over to Art Kleinrath.

Art Kleinrath: I am Art Kleinrath and I work for U.S. EPA out of their Chicago office, Region V. I am assigned by the Superfund Division there to be the Remedial Project Manager at the Twin Cities Army Ammunition Plant. What we are here to talk to about tonight is the proposed thermal treatment of contaminated soils that rests on the TCAAP site. What we are going to be discussing has been considered and studied for quite a long time by the Army, the MPCA, and the U.S. EPA, all in coordination and cooperation with each other. The U.S. EPA believes that this proposed remedy for destruction of the contaminants is the best alternative that we have to do with the soil.

As Clarence mentioned, tonight is part of the decision-making methods that we use in Superfund projects. What we have done is we have collected a set of alternatives - remedies that we can use for the contaminated soils - and we have chosen one and we propose to go forward with it. What we are asking for tonight is public input into that decision-making process, and that can be done

either in written form mailed to the address on the News Sheets that are out front at the door, and taken as oral comments tonight. We will be having a taped transcript of this meeting and each and every comment will be considered before any final decision is made. The responses to those comments would be put in writing in a document called the Responsiveness Summary that would be issued at the same time as the final decision. The procedure that we are following is the procedure that is followed for Superfund and we are desiring your input into this process, but the thing to understand is this is also your right under the law. In order to help separate the questions from the comments, I think it might be a good idea if we took the questions after the presentation separately and will ask for comments to ensure that everybody's comment can get included in the decision-making process. This effort that is culminating this proposal that we are putting forth tonight has been jointly worked on by the Army and the U.S. EPA and the Minnesota Pollution Control Agency. Now what I would like to do is turn over the microphone to Mark Schmitt of the Minnesota Pollution Control Agency.

Mark Schmitt: Thanks, Art. My name is Mark Schmitt and I am Project Manager for the TCAAP site for the Minnesota Pollution Control Agency, and I am here to represent the interest of the State as regards to the proposed remedial action at TCAAP on the thermal treatment of the contaminated soil. I am here to express support and reiterate some of the opinions you have heard already from Mr. Oster and Mr. Kleinrath, that MPCA has for some time now been working rather closely with the Army and with EPA in evaluating the potential remedial action that we are discussing tonight. I am here now and I want to go on the record as saying that the MPCA enthusiastically supports the proposed remedial action. As we will hear later in the program this evening, there are many alternatives that were considered and it's our opinion that the one that is being proposed as the final remedy is far and away the best option. It would have been very easy for the Army to pursue other options that would have been less expensive, but of particular satisfaction to the MPCA is the fact that the Army is choosing an option which will not transplant the contaminated soil but will actually destroy the contaminants in the soil. As a state representative here, I am very interested in hearing your opinion on the proposed remedial action and I want to also assure you that irregardless of the remedial action that ultimately is implemented here, that MPCA staff will be on site to monitor the activities that's going to go on, and with that, I'll turn it over back to Clarence.

Clarence Oster: Thanks, Mark. My remarks are going to be very brief and they are going to involve the Record of Decision, which has been out on public notice for approximately three weeks. Will stay out there so that written comments can still come in until June the 22nd.

The Record of Decision basically uses the analysis of the alternatives and this is what those are based upon, as you can see on this slide. The Technical Feasibility, the Implementation Timeframe, the Regulatory Compliance, Cost, and the Environmental Effectiveness. The five alternatives that were looked at and are listed in the Record of Decision are the ones that you see on the slide. No. 1 of course is no action, which means that you leave the stuff there and you don't do anything with it, which I don't believe anybody feels is a very good idea. The monitoring would continue, etc. The next one talks about transferring it to another storage facility within the TCAAP. The third one is off-site disposal which involves hauling the materials to a hazardous waste landfill out of the state - there are none in Minnesota, so we are dealing with something in Ohio, Illinois, Oklahoma, or some place like that. The fourth alternative is on-site thermal treatment which is the preferred method and that's the one that we are going to discuss more in detail this evening for your information and for your comments and suggestions. Lastly, we looked at off-site thermal treatment which means that you haul the material to a hazardous waste incinerator which might be in Arkansas, Oklahoma, or wherever.

These are the alternatives that were looked at. Again, like I said, the on-site thermal treatment was looked at because of the following reasons: no transportation of hazardous waste is required; it's a permanent solution which everybody likes - it eliminates the future liability; and then, it is the EPA/MPCA/ Army preferred alternative. Now, to cover more of what this remedial action plan is, we have consultant Norm Wenck who will show you slides also and he will talk to you in detail about what that remedial action plan is.

Norm Wenck: Thank you, Clarence. Wenck Associates is a consulting engineering firm and we are located out in Wayzata. We have been involved with this project since 1985. The purpose of the overall project was to clean up a contaminated area here called Site D, which is in the center of the Twin Cities Army Ammunition Plant. It is approximately a mile from any direction from the fence line. I am going to show a few slides about taking out this soil, what we did with it, and something else that we are doing with this site that was the reason that we found it. The soils were discovered there contained PCBs. This is a view of the site before they were removed. They were discovered through some drilling, soil samples that were taken. It was decided to remove these soils before another action was taken. They were taken from the site and moved approximately 100 feet to an area that was prepared. We laid down a 40-mil liner, the seams were all heat sealed, the contaminated soil was placed on this liner, it was then sampled and tested, and then we ended up covering the liner and sealing it all around, and it's sort of like a ravioli sitting out there today. It has been monitored over the years. Like I said, it has been there since November-December of '85. It's in a secure area at this time and will continue to be until the action is taken. What we did with that site is built a vacuum system to clean the soils from other organic contaminants that were there. That has been successfully been operating, and it's operating today.

The particular subject tonight that I want to talk about is the remedial action plan which is this document that I am just going to briefly highlight some of the things in the plan. This plan was developed after the selected alternative of on-site thermal treatment was, and only deals basically with the on-site thermal treatment.

As I said, the soil is presently stored there with a security fence. In 1987, a series of demonstration test burns were performed using the technology that's proposed here, and achieved what's called six nines (99.9999%) removal of the PCB contaminants. Tests were performed on the ash and it was found to be not hazardous according to the RCRA requirements. The PCB soils will be treated to below two parts per million, or two milligrams per kilogram. The purpose of the plan is to thermally treat the soils in conformance with what's called TSCA - the Toxic Substances Control Act - and the thermal treatment unit that will be used is presently permitted and has gone through rigorous monitoring and testing to make sure that it will meet the EPA requirements. The work plan, of which I have been talking here, describes the remedial actions and presents the detailed information on that thermal treatment. I am going to be covering mostly in a general manner and then we are going to have Greg McCartney talk about specifically the thermal treatment method and technology.

The soils, as I showed you, are contained in the liner. They are about 1400 cubic yards of soil. The average PCB contamination level is 70 parts per million, or .007% - a very low level. When we removed it, the level, if the soil would have been below 50, it could have basically stayed where it was. It was over the 50 limit at that time and so that's why we had to remove it.

There are seven parts of the remedial action. First will be the site preparation which will be to grade the site, install concrete pads, (you will see some slides of the equipment that will be brought in), and put in the connections for the water, the electricity, the gas, and the sewer discharge. Soil samples will be taken from below the pads to insure that there is nothing there before we start because we will be checking after we finish to see that we did not leave any contamination there. Concrete pads will be surrounded by 10-inch high curbs to prevent any water or rain that happens from running off and also from rain running onto the site. Any run-off or water that's collected during the process will be treated. The concrete will be sealed so that when we are through we will be able to clean it properly. Then equipment will come in. It's contained in about 15 trucks. After this mobilization it will be set up, installed, and you will see some more details on that. There is a start-up and check-out protocol to make sure that everything is working mechanically and electrically, there is computer control and lots of checks that will be performed.

Then we go to the soil handling. If there are over-sized objects to be crushed, there will be a crusher on site to make sure the materials are all one inch or smaller in size. Fuel oil will be mixed to increase the BTU content of the soils, and then will be fed to the incinerator which has a primary chamber, a secondary chamber, and air pollution control devices, gas scrubber. The process is computer controlled and all the time there are operators on-site controlling it, constant monitoring of emissions, constant monitoring of the oxygen, carbon dioxide, and carbon monoxide - which are the parameters to control the process - in addition to temperature. The clean soils come out; they are tested for PCB, and they are held until we get one-day turnaround soil sample analysis so that we know that soils in the cleanup are below 2 mg/l, and then they are stored near the site where they will remain. If they do not meet the level of two parts per million, they will be recycled. There will be other residuals that will result. From scrubber, solid step media, filter media; these again will also be sampled and if they have PCBs they will be incinerated. There are other tests called EP Toxic tests that will be performed. If there are any problems there, these materials might have to be handled as hazardous wastes and they would be drummed and properly handled.

So we have the clean soils, the other residuals, we have permission from the MWCC to discharge any clean water that doesn't contain PCBs that we are using in our process. It is held until the test results come back and then we get permission from the MWCC to discharge that water.

Then the final thing is decontamination of the equipment and of the pad and the work area. We check that, soil sampling, wipe samples on the pad, etc. If there is any contamination, it is taken care of and possibly some of it may be incinerated and then, of course, decontaminated again to make sure we have removed all the soil.

We have a number of things that we are monitoring. I have sort of listed them as I have gone along but we will be monitoring the ambient air, the air on the site and at the property boundary of TCAAP, to take background measurements before we start, and every day will be taking measurements. People from our firm will be doing that because as we get finished with the job we will be certifying that it was done in accordance with the plan. We will be sort of overview of the project as it continues.

The stack emissions, as I have mentioned, will be continuously monitored. The oxygen, CO and CO_2 will be monitored on a continuous basis, continuous records. As mentioned, the soil will be monitored before each batch is classified as clean, and also then as we finish there will be monitoring decontamination of the water that's used, the equipment, the pad, and the area.

There are some other considerations we might just touch on. That is site control - no one will be in the area that isn't required to be there. The area will be surrounded by the same kind of fence that we show around the storage area right now. We have a health and safety plan that prescribes how people dress when they

are working around this and what kind of gloves they wear, overalls and boots, and that level of safety that they need to have while they are working.

Then documentation as I mentioned - we will be on site during the work and will be accumulating all the operational records, the process records, the monitoring records, and the daily logs, and putting them into a documentation report which will be prepared as part of the certification that it was completed in accordance with the plan.

The proposed schedule for the work is broken down into five activities - site preparation from the day of approval to proceed will take three and a half weeks, mobilization just a few days or a half week, putting all the equipment together is two weeks, the actual thermal treatment of the soil will take three weeks. It will be a 24-hour day operation. To decontaminate and demobilize will be another two weeks. It's about a twelve and a half week time period from the time to go ahead to hopefully we will be out of here and gone.

That's the end of my presentation. I would like to introduce Greg McCartney with OH Materials, who is the firm who has been contracted to actually do the thermal treatment.

Greg McCartney: Hello, I'm a project engineer with OH Materials. OH is an environmental services company that has over 20 years of experience in remediating environmental problems. What I want to talk to you about today is the OHM thermal treatment process, which has been chosen as the alternative to be used out at the TCAAP site.

This is a schematic of the process. This type of technology has been used for over 60 years in the metal annealing industries. This is a perfect temperature control type of furnace that can deliver the needed heat for annealing metal parts for the heavy equipment. I want to point out some of the aspects of this unit.

The soil is fed to the unit at this point where it is leveled out and it drops down onto a metal conveyor belt which pulls the waste through the thermal treatment unit. There are electric heating outlets mounted above on this unit which heat the soil up to approximately 1200° Fahrenheit, at which temperature all the organics will leave the soil, thus leaving the soil free of contamination by the time that it exits the unit. The organics are then taken over to a secondary combustion chamber. This is the place where the organics that are contained in the waste are actually destroyed. This chamber is operated at over 2000° Fahrenheit. After this, the organics are combusted in this unit.

This is the primary chamber (slide) being brought onto our first project which was a Superfund project down in Florida. That project consisted of over 18,000 tons of materials that were contaminated to a level that was approximately three times more concentrated than at the TCAAP site.

This is the chamber (slide) being backed onto the site. You can see it's a big piece of equipment.

This is a slide of the conveyor belt which is inside the chamber. This conveyor belt can reach temperatures of 1600° Fahrenheit.

These are the secondary chamber modules (slides) before they were mounted on the trailer; you can see the 13 inches of insulation which assures that the 2000° Fahrenheit chamber on the inside does not come to the outside. The outside skin of this unit is designed to remain less than 150° Fahrenheit.

This is the scrubber trailer (slide) being brought onto the site. This is where the gases are cooled, quenched, and scrubbed of particulars.

This is an overall shot (slide) of the unit as it was set up at the site in Florida. There was a vacant building at this site so we decided to utilize it since in southern Florida you do get quite a bit of rain.

You can see the (slides) primary chamber here, secondary chamber, air pollution control devices, and then the exhaust fan.

You can also see another exhaust fan here (slide). This is an emergency backup exhaust fan. The way this system was designed, it is fail-safe. If we have a power outage, this emergency backup blower will start automatically on an emergency generator and the scrubber pumps will also be operated off this unit in order to include any emissions being discharged during a power outage. The unit is also equipped with many interlocking devices in order to make sure that the permit conditions are maintained.

An aerial shot (slide) of the unit as it was set up at one point.

Control trailer, all the control equipment, computer equipment, monitoring equipment will be in this trailer (slide).

The electrical equipment is located in this trailer - the primary, secondary, and pollution control devices (slide).

The advantages of the infrared process - there are a couple of them - is that the waste has a precise time in the chamber. When it is set for 30 minutes, you know your waste is in there for exactly 30 minutes. There is very accurate temperature control since the heat is put into the unit through the electrical heating elements; you can control the furnace atmosphere; there is a low combustion gas flow since you are indirectly heating the primary chamber; there is a high throughput on this trailer so we can get quite a bit of tonnage through the trailer and thus make the project shorter. There is also minimal mechanical agitation inside this unit.

This is a slide of the computer console; there are two completely redundant systems here so if one fails the other one can be used to control the incinerator. The operator can monitor the site with the video screens. He has two-way communication with the

field and he also has outside communication. On the screen he has all the motors, pumps, and all the electrical monitoring devices shown. If anything was to go out of specifications, the waste feed system automatically shuts down and the operator can know immediately what the problem is and he can resolve it there.

This is the emissions monitoring equipment (slide) that Norm talked about - carbon monoxide, carbon dioxide, and oxygen. They are recorded and monitored on a continuous basis. This information is continuously fed to the computer console and it assures that the proper permit conditions are maintained inside the incinerator during the process.

This is the crushing plant (slide) to assure that the waste is all sized less than one inch before it's placed into the incinerator.

This is the feed hopper (slide) for the incinerator. At that point is the last time the material is exposed to the outside atmosphere; from thereon it is totally enclosed into the primary chamber where it is leveled out and thermally treated. The thermal treatment unit also has negative draft on the entire system. Therefore, if there is a leak from the unit, it is leaked into and not out of the unit.

Picture inside the primary.

The shot inside the secondary where the 2000° temperature and four-second retention time for gasses to release.

This is the air pollution control device and the exhaust stack (slide).

Here is the point (slide) where the soil enters the unit at this far end, you can see the controls here. It comes out this end after it has been decontaminated and is loaded into a truck and transported to an analytical storage area where the verification of the cleanup criteria is established.

This unit has been through a very comprehensive demonstration program with the U.S. EPA out of Washington, DC, the Office of Toxic Substances. We have completed over eight demonstration runs with this unit, during which all of the guidelines and requirements were exceeded for the destruction of PCBs. With that, we have been authorized by the U.S. EPA in order to use this on other sites.

Clarence Oster: That's the conclusion of what this project is and our presentation to you. I guess at this point is when we open it up, and Art indicated we should try to keep it for questions first. So, are there any questions? Again, if you would please, if you would step up to the mike and state your name and I guess it doesn't have to necessarily be to your affiliation, but at least so that we know or we can trace you back to the registration slip.

If there aren't any questions, are there any comments?

My name is Mark Murlowski and I live in New Brighton. I was just curious - is there going to be required to have a performance bond for this particular work through the company that is going to be doing the remedial action? Did bonding ever enter into it?

Clarence - Maybe I can take a shot at that. Performance bond normally does not enter into these that I am aware of, but what has been used in this case is the past testing and, as you heard from OH and from the regulatory agencies, that they have a hazardous waste permit for this unit. So based upon that, is the go ahead to do the work.

Mark Murlowski: ***Where does the ultimate liability rest then, if there was a problem?***

Clarence - I guess the ultimate liability would rest with the Army, who is funding all the remedial action projects.

Greg McCartney: Clarence, I think I might be able to clarify something here. In obtaining our National TSCA permit, we needed to supply financial assurance for the closure of the unit, which is provided to the EPA in Washington. If there was a problem, the EPA in Washington has the funds to demobilize, decontaminate, and remove the incinerator from the site. That is a part of the requirements to obtaining the permit; that way the liabilities are covered.

Mark: ***So liabilities are covered through the government again, rather than through a private firm such as yourself.***

Greg: No, we provide the assurances.

Mark: ***The government holds the assurances?***

Greg: As a private contractor, we have to provide those and they are supplied to the government and they are given the authorization to use it.

Carlos Stern: As I understand it, the payment is based on achieving the performance level, and if they don't achieve the performance level they have to keep doing the job until they do or they don't get paid. The goal that Clarence described is the necessary point for receiving payment.

Mark: ***My question more was with regard to, rather than them being paid for the job done adequately, is in case there was a problem, is there an insurance company that backs up the problem or is there ultimately a performance bond to kick in, that type of thing? I mean, a liability could be tens of millions of dollars where possibly this action is significantly less than that.***

Clarence: I'm not aware of anything like this, unless some of the consultants are. I know the consultants have a real concern about liabilities, etc., and Congress has been fighting with this. If there are some lawyers in the audience, perhaps they may have some idea. Carlos?

Carlos: I'm not a lawyer, but in similar situations my experience has been that unless there is negligence on the part of the contractor, the responsibility basically is with the party that generated the waste. They have the liability now. This is the way to terminate the liability that's there already. If a problem emerges of a type, I don't know what you have in mind, there would be an argument I imagine between the Army and the contractor as to whether they behaved and acted in a professional manner.

Clarence: I could visualize, let's say that we haul this material off site to a landfill in Oklahoma and along the way, either by train or trucks or whatever, there were accidents or something happened and the materials ended up on the roadside and whatever, those materials will still be the responsibility of whoever, in this case the Army, so we would have to go out there and clean it up. We would probably go after that firm that did the work, like Carlos says, to see if they acted in a responsible manner. If it was a complete accident, if a tornado went through or something, well then you know that's something by itself.

Clarence: Are there any other comments from Art or from Mark?

Art: Just in terms of the performance, I think the one thing to really truly remember here is that assurances were performed - in terms of the system that's been set up, in terms of the trace of that system, and in terms of the fact that the contaminated material won't be put to rest permanently until it has already been checked and the operating conditions will be continuously monitored to know that fact in order to ensure that things don't go wrong.

Clarence: Art, what do you do in other Superfund sites where this cleanup goes on and whatever may happen?

Art: Well, there is an indemnification for things that are done under Superfund. In case of situations as the Army, we look at the Army or whatever the party would be.

Clarence: Or if the industry did it, you would look at them to carry it through all the way.

Art: Correct.
Clarence: Are there any other comments, questions. OK, like I said before, if something else comes up, the record will stay open, as the Record of Decision is being advertised, until June 22nd. Thank you very much for attending. We hope that we'll see you at the next one.

Adjourned at 7:45 P.M.